



## ADVANCED FORMULA

- NMX1000® ASU
- FCHG49® Glucosamine
- TRH122® Sodium Chondroitin Sulfate
- Green Tea Extract (EGCG)
- MSM
- Manganese Ascorbate
- Alpha-Lipoic Acid
- Proprietary Boswellic Acids high in AKBA
- NMXCC95® Curcumin Extract
- EPA/DHA Fatty Acids (soft chews only)

## ADVANCED SCIENCE

- Ingredients supported by research:
  - Inhibition of multiple inflammatory mediators including NF-κB, the “switch” that turns on the inflammatory pathway
  - Support of cartilage matrix production
  - Protection against cartilage breakdown

## ADVANCED PACKAGING

- Dispensing cartons specifically designed to limit appeal to online pharmacies and support in-clinic sales. Each carton has a unique tracking number to help protect against internet diversion.
- Available in chewable tablets and tasty soft chews!
- Offered in two strengths:
  - For Small to Medium Dogs (Up to 60 lbs)
  - For Large Dogs (60 lbs and Over)

# DASUQUIN®

## ADVANCED

### JOINT HEALTH SUPPLEMENT



Chewable Tablets in Bottles (Six 64 ct Bottles or Four 140 ct Bottles)



Chewable Tablets in Blisters (Forty 16 ct Blisters)



Soft Chews in Resealable Bags (Six 64 ct Bags or Four 140 ct Bags)

Also available in Sprinkle Capsules for Cats of all sizes!

# DASUQUINADVANCED.COM

#### REFERENCES:

1. Lippiello L, Woodward J, Karpman R, Hammad TA. *Clin Orthop Rel Res* 2000;381:229-240.
2. Canapp SO, McLaughlin RM, Hoskinson JJ, et al. *Am J Vet Res* 1999;60(12):1552-1557.
3. Au R, Au A, Rashmir-Raven A, et al. *FASEB J* 2007;21(6):A736.
4. Heinecke LF, Grzanna MW, Au AY, et al. *Osteoarthritis Cartilage* 2010;18:220-227.
5. Frondoza CG, Fortuno LV, Grzanna MW, et al. α-Lipoic acid potentiates the anti-inflammatory activity of avocado/soybean unsaponifiables in chondrocyte cultures. *Cartilage* 2017. doi: 10.1177/1947603516686146.
6. Antony B, Butchin RK, Griffin DW. *ACVIM Forum* 2009;poster.
7. Data on file. Nutramax Laboratories Veterinary Sciences, Inc. 2012.

♦Source: Among veterinary brands. Survey conducted in February 2016 of small animal veterinarians who recommended oral joint health supplements.



**nutramax**  
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# **DASUQUIN<sup>®</sup>**

## **ADVANCED**

### **JOINT HEALTH SUPPLEMENT**



## **ADVANCED FORMULA**

## **ADVANCED SCIENCE**

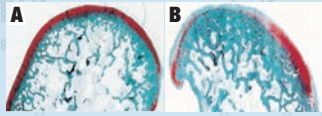
## **ADVANCED PACKAGING**



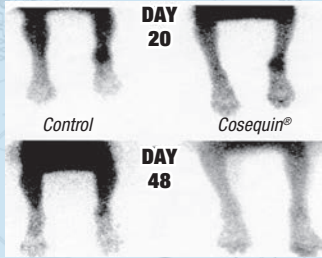
U.S. Patent Nos. 6,797,289, 8,753,697,  
9,421,234, and 9,572,791. For use  
under U.S. Patent Nos. 8,568,803 and  
8,808,770. Additional Patent Pending.

**nutramax<sup>®</sup>**  
LABORATORIES  
VETERINARY SCIENCES, INC.

FORMULATIONS AVAILABLE FOR  
**SMALL TO MEDIUM & LARGE DOGS**



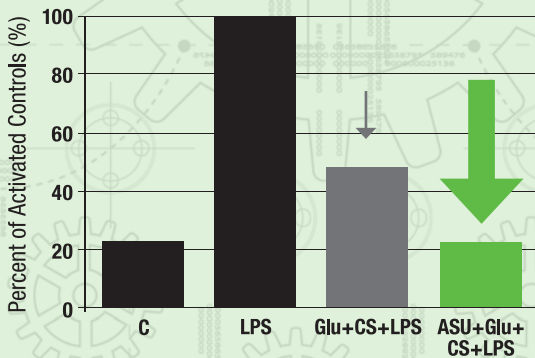
Red=cartilage. A is from group given Glu, CS, and manganese ascorbate (more cartilage). B is from control group (less cartilage).<sup>1</sup>



Representative scintigraphic views.<sup>2</sup>

## Glucosamine (Glu) + Chondroitin Sulfate (CS) + Manganese Ascorbate (Mn):

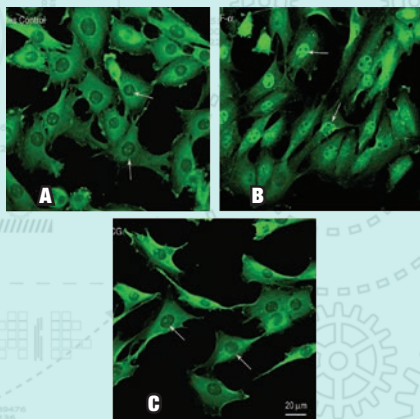
- Stimulates cartilage matrix production and inhibits cartilage breakdown
- Helps support comfort level
- Together shown in cell culture research to protect cartilage better than either one alone<sup>1</sup>
- In a dog study, Cosequin® (the combination of Glu, CS, and Mn) helped protect against chemically induced synovitis as well as the associated bone remodeling; pre-administration also helped maintain comfort<sup>2</sup>
- FCHG49® Glu + TRH122® CS researched specifications



TNF- $\alpha$  expression in LPS-activated THP-1 cells. ASU+Glu+CS inhibits expression to a level comparable to non-activated control (C) and is better than Glu+CS.

## Avocado/Soybean Unsaponifiables (ASU):

- Protects cartilage
- Supports joint comfort
- Shown in cell culture research to advance the performance of Glu and CS<sup>3</sup>
- NMX1000® ASU researched specification



## Green Tea Extract (EGCG):

- Provides antioxidant benefits
- The combination of ASU and epigallocatechin gallate (EGCG) inhibits:
  - Nuclear translocation of NF- $\kappa$ B; and
  - COX-2 expression and PGE<sub>2</sub> production better than either agent alone<sup>4</sup>

Control chondrocytes (A) contain most NF- $\kappa$ B (stained bright green) in the cytoplasm. When chondrocytes are activated (B), NF- $\kappa$ B moves in to the nuclei to start the inflammatory cascade. ASU and EGCG (C) inhibit much of this nuclear translocation, inhibiting the cascade at its source.

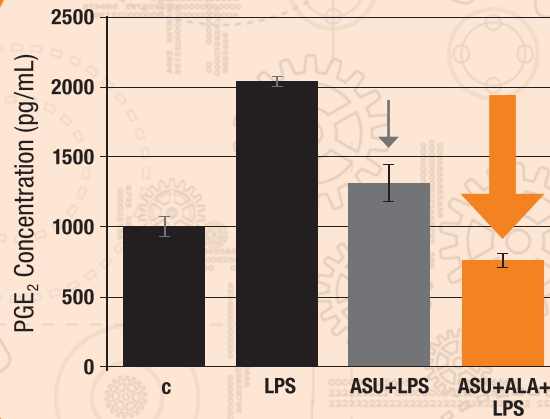
## Methylsulfonylmethane (MSM):

- A source of organic sulfur, a compound used by cartilage



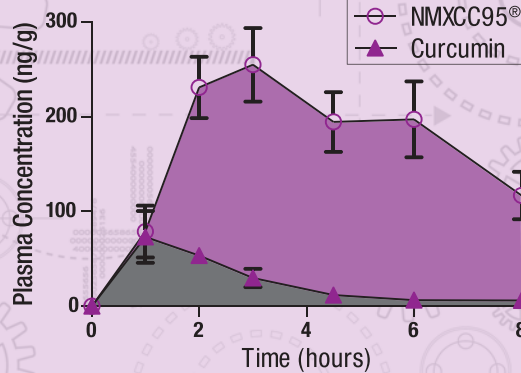
## EPA/DHA: (SOFT CHEWS ONLY)

- Long-chain omega-3 fatty acids
- Supports strong muscles, healthy joints, and flexibility



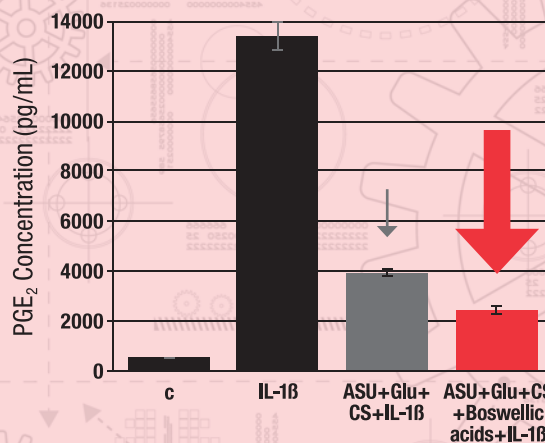
## $\alpha$ -Lipoic Acid (ALA):

- An antioxidant
- The combination of ASU+ALA was shown to inhibit PGE<sub>2</sub> production *in vitro* **42% better** than ASU alone<sup>5</sup>



## Curcuma Longa Extract (CUR):

- An antioxidant
- NMXCC95<sup>®</sup> CUR offers greater bioavailability than standard curcumin extract:
  - In dogs, absorption was nearly **7x higher**
  - **3x higher** maximal plasma concentrations<sup>6</sup>



## Boswellia Serrata Extract (AKBA):

- Shown *in vitro* to inhibit the inflammatory response
- **30% more reduction** in PGE<sub>2</sub> *in vitro* by adding boswellia to ASU+Glu+CS<sup>7</sup>
- Inhibits other inflammatory mediators (IL-6, IL-8, and MCP-1) when added to ASU<sup>7</sup>

# DASUQUIN<sup>®</sup>

## ADVANCED

### JOINT HEALTH SUPPLEMENT

See back for  
**NEW**  
**ADVANCED PACKAGING**  
Flexible Dispensing &  
Non-Internet Friendly!